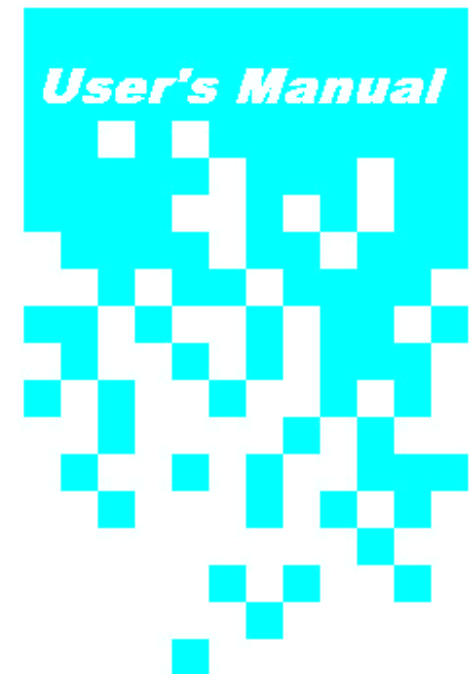




PCM-3523,PCM-3523S
User's Manual



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Packing Set

Before you begin installing PCM-3523, PCM-3523S card, please make sure that the following materials have been shipped.

- 1 VGA To Signal Converter module
- 1 User's Manual (this document)
- 1 DB15(male) to DB15(female) cable
- 1 16-pin box header(female) to 16 pin box header(female) cable
- 1 Drivers disk for DOS, Windows 3.1 & Windows 95

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

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CHAPTER 1

General

Information

This chapter gives background information on the PCM-3523. You can find out:

- Introduction
- Product Highlight
- Features
- Specification
- Board Layout

Introduction

The PCM-3523(S) converts RGB video and sync from a standard VGA source into broadcast quality NTSC and PAL video. Composite and S-Video outputs are compliant with SMPTE-170M and CCIR-656 specification. A fully integrated 3-line adaptive flicker filter provides three selectable operating modes.

The PCM-3523(S) is a VGA to Video converter capable of producing broadcast-quality signals conforming to NTSC and PAL standards using a single low-cost application circuit. Included is all of the active circuitry required to generate a television signal with outstanding image quality in a standalone application.

Incoming VGA source signals must be 2X the frame and 2X the line rate of outgoing TV standard within a $\pm 2\%$ tolerance. Supported VGA formats are 640x480 at 60Hz for NTSC and PAL-M, and 640x480 and 800x600 at 50Hz for PAL B/G/H/I.

The PCM-3523S has an additional software control of the composite-video output to select between external video input or VGA input. Which the PCM-3523 does not have this function.

Product Highlights

- PC/104 Embedded-PC Module.
- Multiple Input Formats
-640x480 50/60 Hz, 800x600 50Hz
- Multiple Output Standards
-NTSC, NTSC-EIA, PAL-B/G/H/I
- Flicker Free Design
- Composite-Video Output
- S-Video Output
- Horizontal/Vertical Position Control
- Composite-Video Output is allowed to switch between external video input and VGA input by software control.(PCM-3523S)

Features

- Flicker free VGA to TV signals converter
- 3-Channel 8 bit input conversion
- Multiple input formats
-640x480 50/60Hz, 800x600 50 Hz
- Multiple output formats
-NTSC, NTSC-EIA, PAL-B/G/H/I
- Composite and S-video output formats
- Horizontal and vertical positioning control
- Configuration set by switches
- Internal color bar

- 3-Channel 9-bit output D/A converters
- Blanks to blue or black
- Single +5V power supply

Specifications

Technical Specifications

Computer BUS: PC/104 (ISA) Standard

Bus Width: 16-bit

Input/Output Connectors:

- | | |
|---|--------|
| ➤ VGA input (DB15 male) | Input |
| ➤ VGA input (16 pin box header) | Input |
| ➤ External video input (RCA) | Input |
| ➤ External video input (3-pin header) | Input |
| ➤ VGA output (DB15 female) | Output |
| ➤ VGA output (16 pin box header) | Output |
| ➤ Composite video output (RCA) | Output |
| ➤ Composite video output(3-pin header) | Output |
| ➤ S-Video output (4 pin mini DIN) | Output |
| ➤ S-Video output (5-pin header) | Output |
| ➤ 4 pin power connector (+5V) | Input |

Physical and Environmental Specifications

Length: 3.6 inches

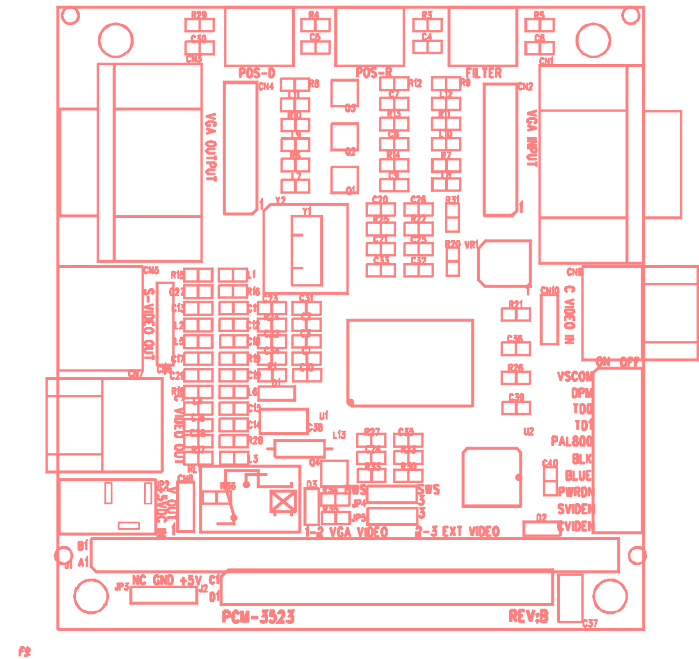
Width: 3.8 inches

Operating Temperature: 32 to 140 °F (0 to 60 °C)

Humidity (operating): 5% to 95% Non-Condensing

Power Requirement: 5.25 to 4.75 tolerances on power supply

Board Layout



CHAPTER 2

Hardware Installation

This chapter tells how to set up the PCM-3523(S) hardware, including instruction on setting jumpers and connecting external devices. Be sure to read all the safety precautions before you begin the installation procedure.

- Jumpers , Connectors , Switches
- Locating Jumpers
- Locating Connectors
- Locating Switches
- Safety Precaution
- Installing PCM-3523 Modules

Jumpers, Connectors, Switches

Connectors on the board link it to external TV monitor devices and other PC/104 modules. In addition, the board has a number of jumpers that allow you to configure the display application to suit your systems. The table below lists the function of each of the board jumpers, connectors and switches:

Jumpers

JP3	4-pin power connector
JP4	Select control method of composite video output by hardware or by software. Refer to table 1.
JP5	Select composite video output source. Output from external video or VGA input. Refer to table 1
VSCOM	Vertical Sync Communication Enable. When close to OFF, vertical sync pulse width (VGAVS) will control the filter mode. When close to ON, filter will control by the FILTER toggle switch.
DPM	Display Power Management Signaling Enable. When close to OFF, the operation state of the chip is controlled by the pulse activity on VGAHS and VGAVS. When close to ON , the state of the chip is controlled only by input pin.
TD0,TD1	Video Output Standard Select. Preprogrammed into the module are timing, sub-carrier frequency and phase parameters corresponding to worldwide NTSC and PAL

standard. TD0-1 select one of four sets of parameters to set up the encoder. Frames rate of the graphics source must be twice the frame rate of the selected video standard. Refer to table 4.

PAL800 **Resolution Select for PAL.** Sets number of samples per VGA line. Refer to table 4.

BLK **Blank Screen Generator.** When close to OFF, the color selected by BLUE is displayed on the screen. When close to ON, incoming video from the internal FIFO is encoded and displayed. Refer to table 2.

BLUE **Blank Screen Color Select.** When close to OFF, the screen will be blanked to blue when BLANK is closed to OFF. When close to ON the screen will be blanked to black when BLANK is closed to OFF. Refer to table 2.

PWRDN **Power-Down Control.** When close to OFF, the PCM3523(S) is fully operational and enabled. When close to ON , the PCM3523(S) is configured for minimum power consumption. D/A converters and clocks are disabled. Previously established set-up conditions are retained and remain in effect when PWRDN close to OFF again.

SVIDEN **S-Video D/A Power Enable.** When close to OFF, the CHROMA and LUMA D/A converters are enabled. When close to ON, they are disable to save power. Refer to table 3

CVIDEN **Composite Video D/A Power Enable.** When close to OFF, the COMPOSITE D/A converter is enabled. When close to ON it is disabled to save power. Refer to table 3.

Setting Jumpers

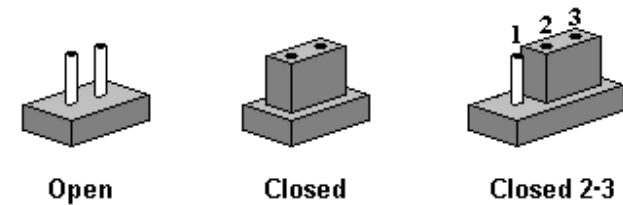


Table 1 Composite Video output select (for PCM-3523S only)

JP4	JP5	C-Video output source
Closed 1-2	Closed 1-2	from VGA converted to video
Closed 1-2	Closed 2-3	bypass from external video
Closed 2-3	don't care	controlled by software

If controlled by software then you must use the PC I/O port address 280H to control the C-Video output. For example, if you want the C-Video to be output from the external video, then you must output 0 value to port 280h. In assembly language you should write: *out 280h,0;*. If you want the C-Video to be output from the VGA converted signal then you must write: *out 280h, 1;*.

Table 2. Video Output

BLUE	BLK	Video output
X	ON	video
ON	OFF	Black
OFF	OFF	Blue

Table 3. Video Output Control

		VGAHS& CVIDEN	Composite Video	SVIDEN S-Video
		VGA VS		
X	OFF	YES	Active	X
OFF	X	YES	X	Active
ON	ON	X	Blank	Blank
OFF	OFF	NO	Blue	Blue

Table 4. VGA Input Format

			HxV Input	Frame Rate (Hz)	Line Rate (kHz)
TD1	TD0	PAL800	Pixels		
ON	X	ON	640x480	59.94	31.469
OFF	ON	ON	640x480	50	31.250
OFF	ON	OFF	800x600	50	31.250
OFF	OFF	ON	640x480	60	31.469

Connectors

Label	Function
J1	PC/104 ISA-bus expansion
J2	PC/104 ISA-bus expansion
CN1	VGA input (DB15 male)
CN2	VGA input (16-pin box header)
CN3	VGA output (DB15 female)

CN4	VGA output (16 pin box header)
CN5	S-Video output. (4-pin mini DIN)
CN6	S-Video output. (5-pin header)
CN7	Composite video output. (RCA jack)
CN8	Composite video output. (3-pin header)
CN9	External video input. (RCA jack)
CN10	External video input. (3-pin header)

Switches

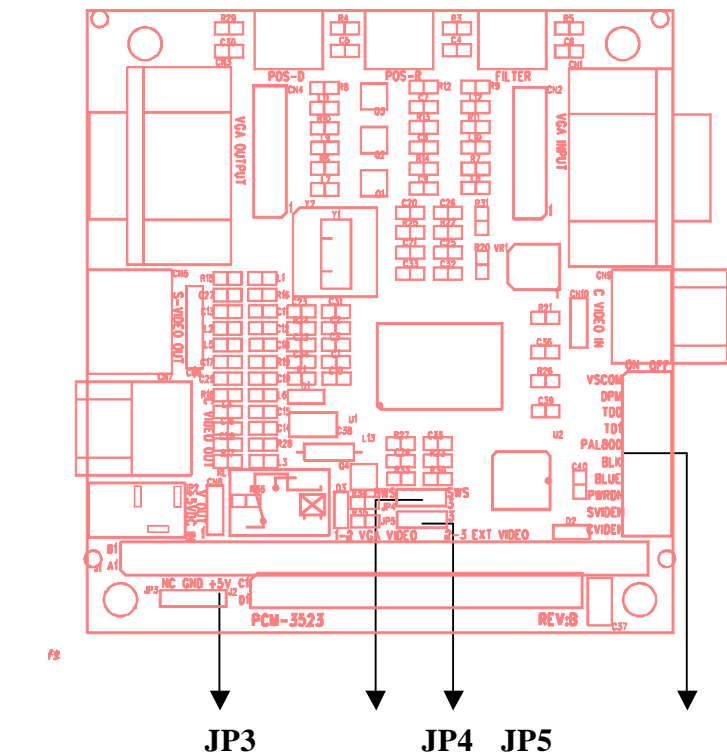
Label	Function
POS-D	Image Positioning Down and Up. Each pulse moves the TV windows down eight lines. At the lowest position (-64 line) the direction reverse and the pulses move the image up in 8-line increments to the highest position (+64 line). At this point the direction again reverses and the next sixteen pulses move the image down to the lowest position.
POS-R	Image Positioning Right and Left. Each pulse moves the TV window eight pixels to the right. At the maximum right position (+64 pixels) the direction reverses and the next sixteen pulses move the window left to the maximum left position (-64 pixels). Direction again reverses and the next sixteen pulses move the image right.

FILTER Flicker Filter Select. Each pulse cycles the flicker filter mode

as below sequence.

Filter Mode	V
HIGH(default)	V
MEDIUM	V
No filter	V
Color bars	

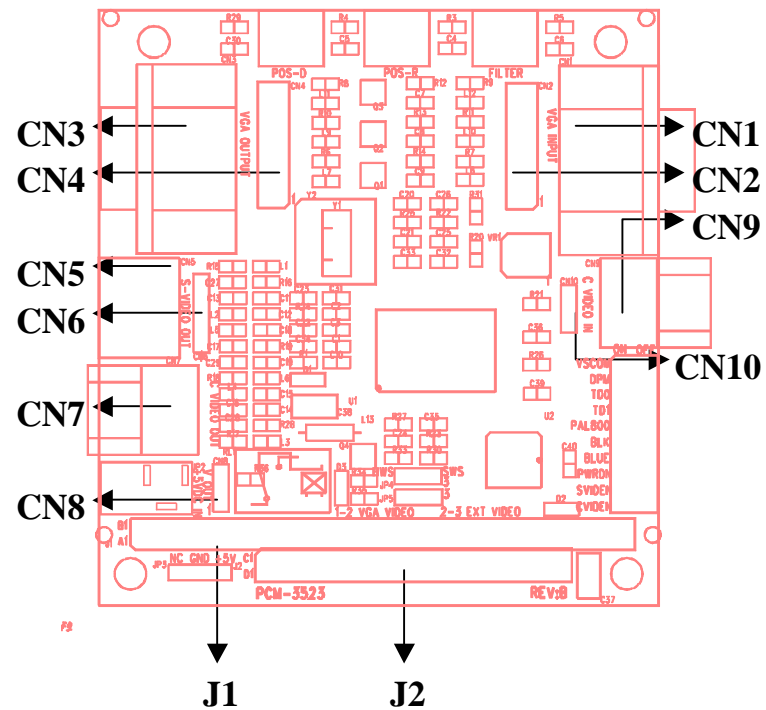
Locating Jumpers



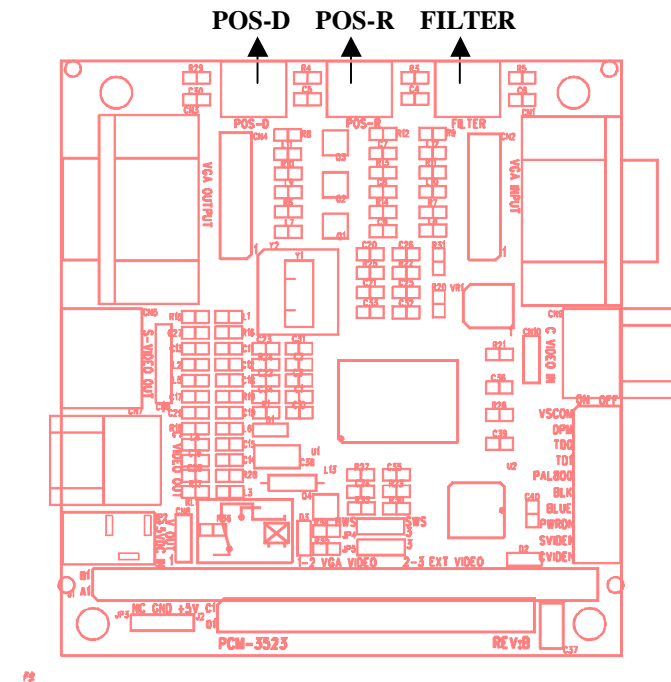
Configuration

Jumpers

Locating Connectors



Locating Switches



Safety Precautions

Warning! *Always completely disconnect the power cord from your chassis whenever you are working on it. Do not make connections while the power is on because the sudden rush of power can damage sensitive electronic components. Only experienced electronics personnel should open the PC chassis.*

Caution! *Always ground yourself to remove any static Charge before touching the card. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipate surface or in a static-shielded bag when they are not in the chassis.*

Installing PCM-3523 Module

Factory Default Settings

PCM-3523 card default configuration of a system that supports the NTSC standard specification will depend on the available system resources.

JP4 Closed 1-2 (PCM-3523S only)

JP5 Closed 1-2 (PCM-3523S only)

VSCOM Closed to ON

DPM	Closed to OFF
TD0	Closed to OFF
TD1	Closed to ON
PAL800	Closed to ON
BLK	Closed to ON
BLUE	Closed to OFF
PWRDN	Closed to OFF
SVIDEN	Closed to OFF
CVIDEN	Closed to OFF

CHAPTER 3

Installation for Win 95 and Win3.1

- Introduction
- Installing the driver

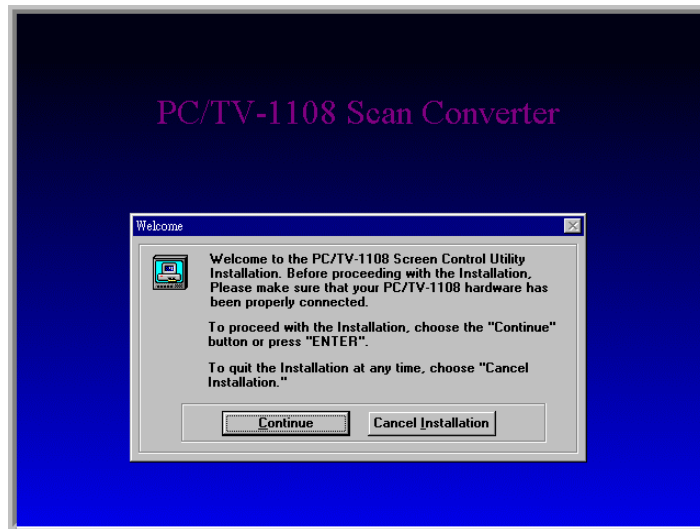
Introduction

The PCM-3523 driver is supplied on one floppy disk.

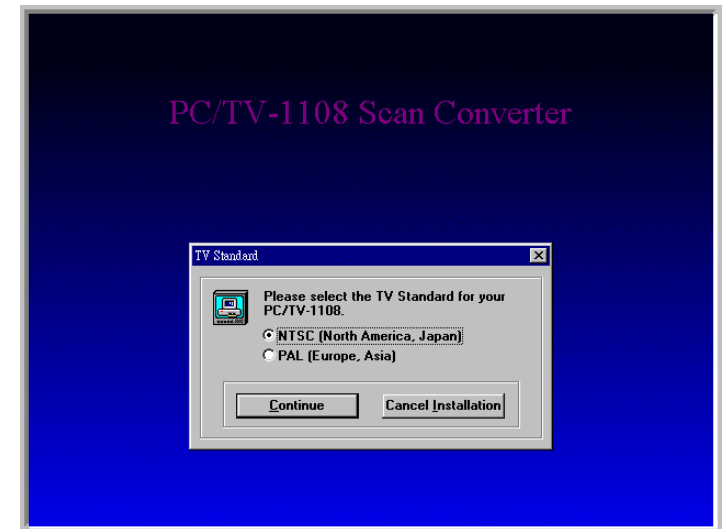
Installing the Driver

The supplied software contains a Windows screen control utility, Wscrctrl.exe. Use the File Manager under your Windows 3.1 or run in Windows 95 Start Menu to setup this utility. To install driver on your system, please run setup.exe file. The software will guide you through the entire installation.

1. The following dialog box appears when you run the setup.exe in Windows. To proceed with the installation , choose the “continue” Button or press “ENTER”.



2. The next dialog box appears. Then choose the standard TV system you needed.



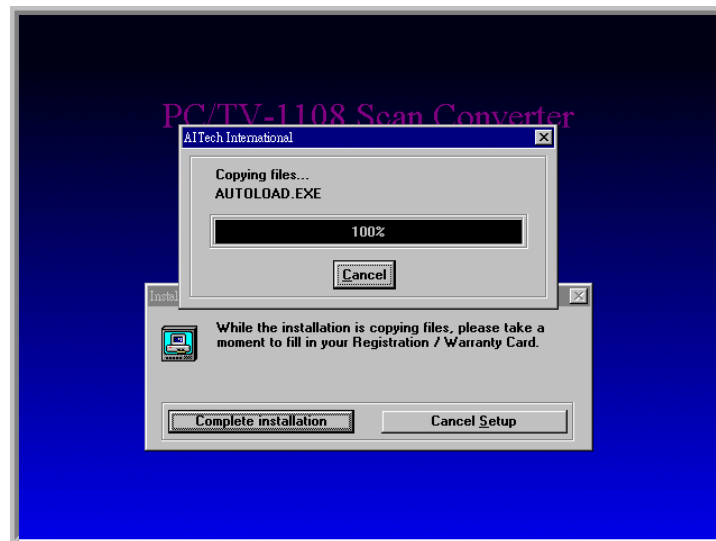
3. After choosing your TV system, following dialog box appears. Then decide the directory you want to install in your hard disk.



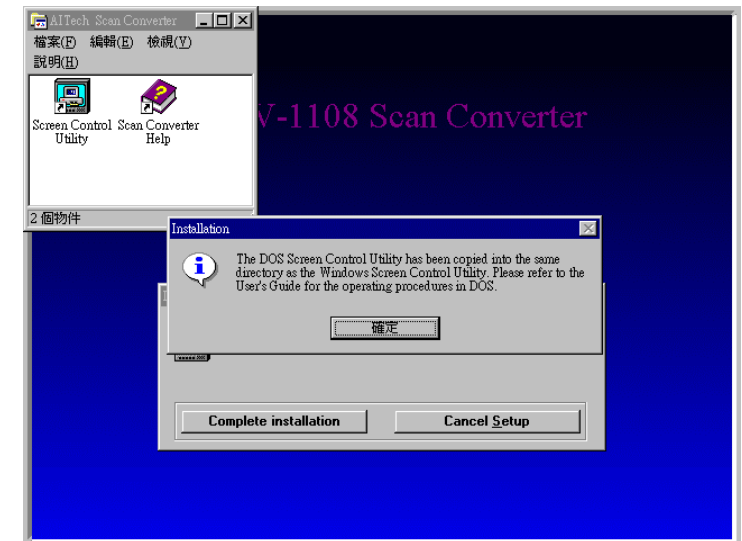
4. After choosing the directory. The setup program will create a Screen Control Icon in your Windows system.



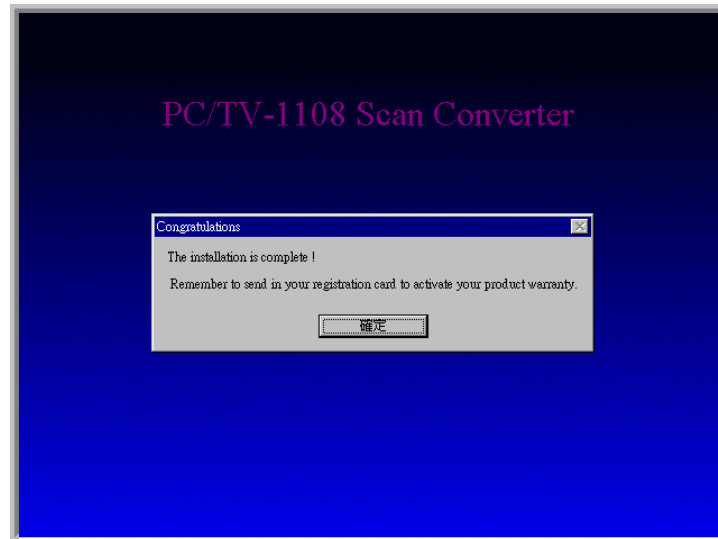
5. The setup program will copy the files to the Windows system.



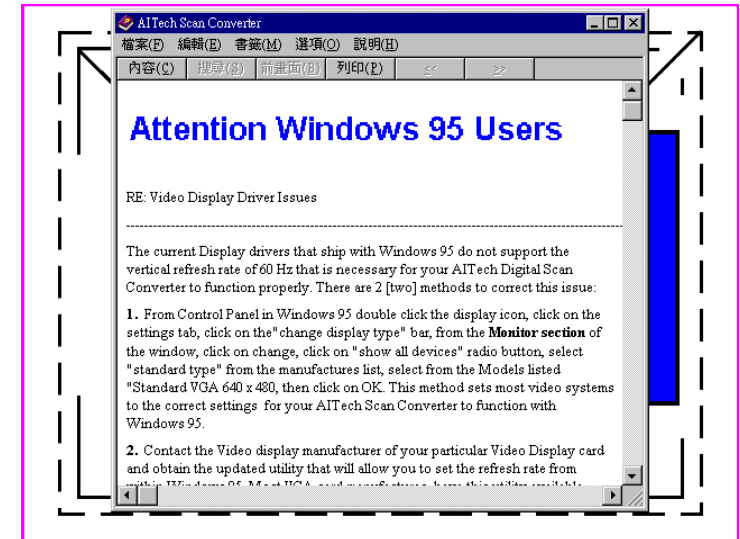
6. The setup program will create the Screen Control Icon in Windows system.



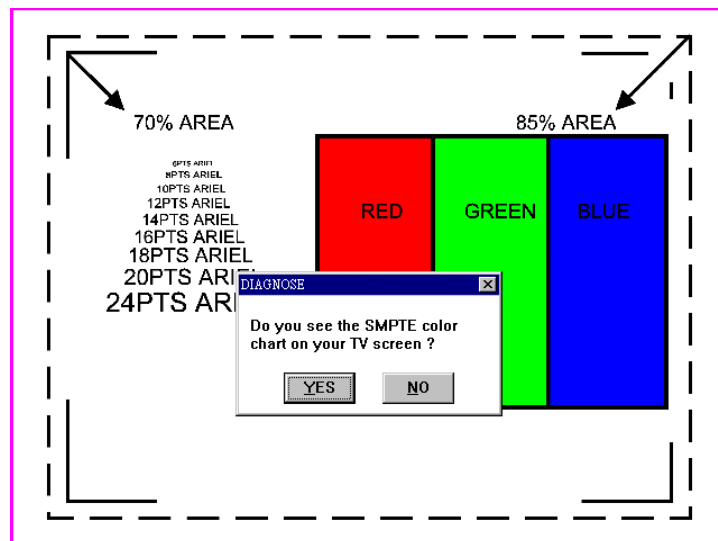
7. The installation is completed.



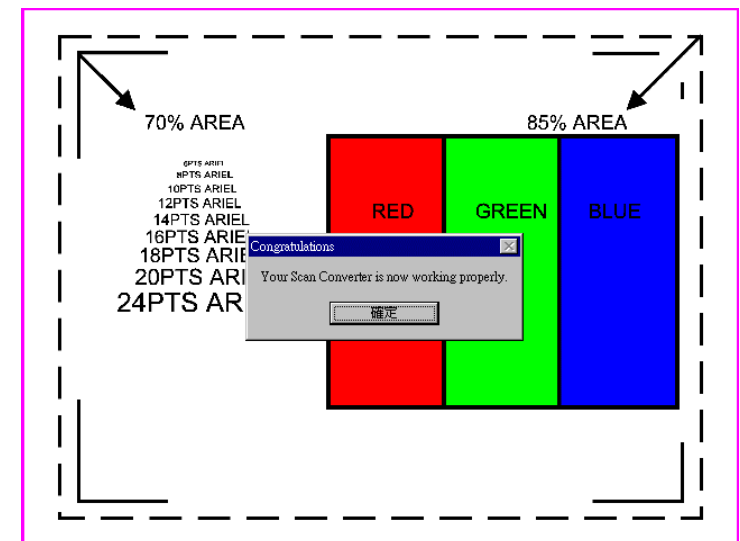
8. After installation is completed, the screen will show the attention for Windows 95 Users.



9. The next step will show the SMPTE color chart on your TV screen when you restart your windows program.



10. Installation is completed.



APPENDIX A

Installing PC/104 Modules

This appendix gives instructions for installing PC/104 Modules

Installing PC/104 Modules

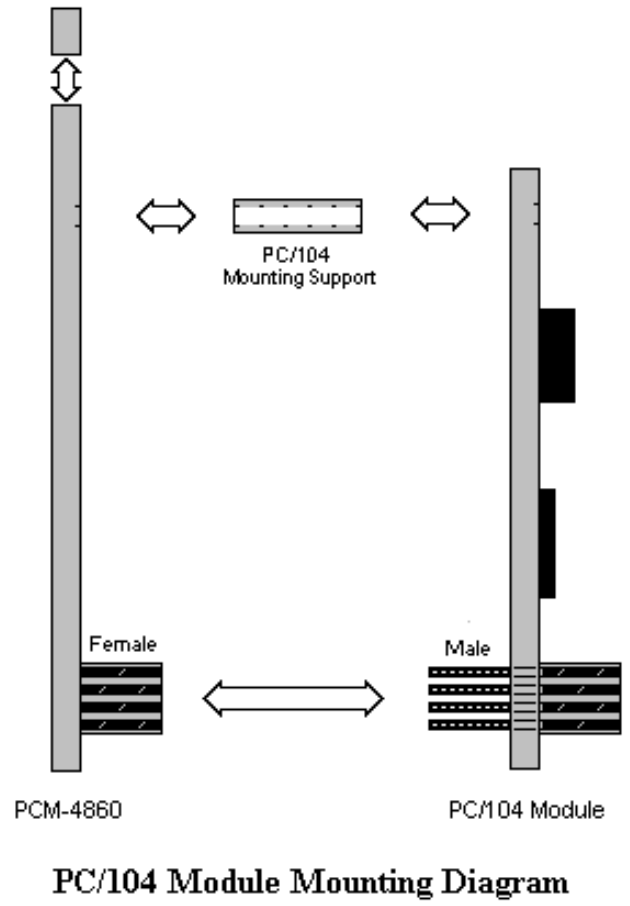
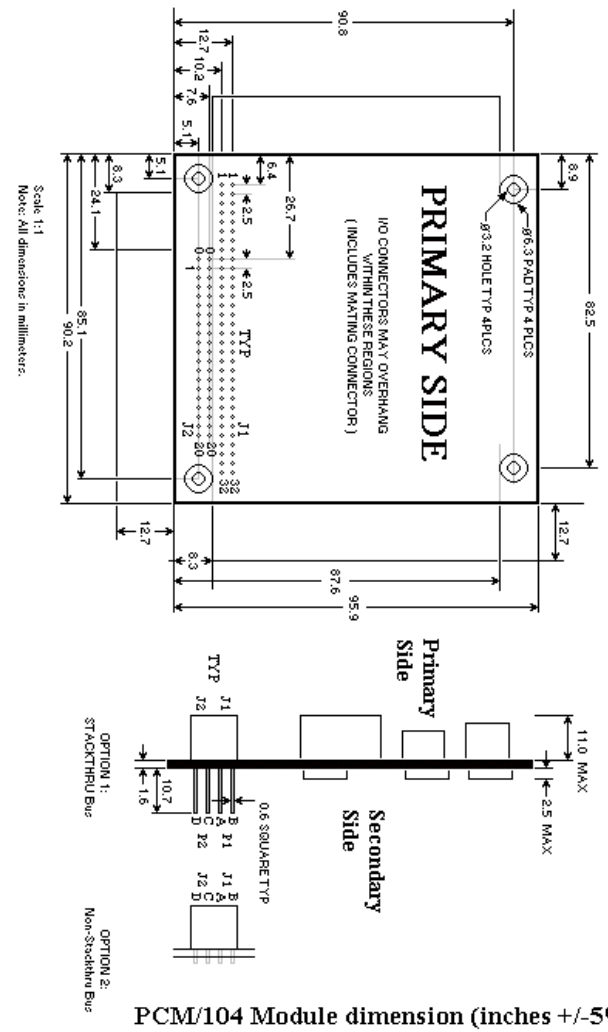
The CPU card's PC/104 connectors give you the flexibility to attach PC/104 expansion modules. These modules perform the functions of traditional plug-in expansion cards, but save space and valuable slots. Modules include:

- **PCM-3335** 386 CPU Module w/ Flat Panel/CRT Interface
- **PCM-3600** FAX/Modem Module
- **PCM-3420** Fast SCSI-2 Module
- **PCM-3200** Sound Module
- **PCM-3810** Solid State Disk Module
- **PCM-3820** High Density Flash Disk Module
- **PCM-3115** PCMCIA Module (two slots)
- **PCM-3610** Isolated RS-232 and RS-422/485 Module
- **PCM-3660** Ethernet Module
- **PCM-3718** 30 kHz A/D Module
- **PCM-3724** 48-Channel DIO Module
- **PCM-3910** Breadboard Module

Installing these modules on the CPU card is quick and simple. The following steps show how to mount the PC/104 modules:

1. Remove the CPU card from your system paying particular attention to the safety instructions already mentioned.
2. Make any jumper or link changes required to the CPU card now. Once the PC/104 module is mounted you may have difficulty in accessing these.
3. Normal PC/104 modules have male connectors and mount directly onto the main card. However, to ensure better bus matching, the connectors on the CPU card and the PC/104 module are both female. For this reason, you may need to use the "male-male" adapter included with the CPU card in order to properly connect your PC/104 module. (Refer to the diagram on the following page.)
4. Mount the PC/104 module onto the CPU card by pressing the module firmly but carefully onto the mounting connectors.
5. Secure the PC/104 module onto the CPU card using the four mounting spacers and screws.

PC/104 16BIT MODULE DIMENSIONS



APPENDIX B

Pin Assignments

This appendix contains information of a detailed or specialized nature. It includes:

- PC/104 Connector (J1,J2)
- 16 Pin box header(CN2,CN4)
- DB15 Connector(CN1,CN3)
- S-Video 5-pin header (CN6)
- C-Video 3-pin header (CN8,CN10)

PC/104 Connectors (J1, J2)

PCM-3523 PC/104 Connectors (J1, J2)				
Pin Number	Signal		Signal	
	Row-A	Row-B	Row-A	Row-B
0	--	--	0V	0V
1	IOCHCHK	0V	SBHE	MEMCS16
2	SD7	RESETDRV	LA23	IOCS16
3	SD6	+5V	LA22	IRQ10
4	SD5	IRQ9	LA21	IRQ11
5	SD4	-5V	LA20	IRQ12
6	SD3	DRQ2	LA19	IRQ15
7	SD2	-12V	LA18	IRQ14
8	SD1	ENDXFR	LA17	DACK0
9	SD0	+12V	MEMR	DRQ0
10	IOCHRDY	(KEY)	MEMW	DACK5
11	AEN	SMEMW	SD8	DRQ5
12	SA19	SMEMR	SD9	DACK6
13	SA18	IOW	SD10	DRQ6
14	SA17	IOR	SD11	DACK7
15	SA16	DACK3	SD12	DRQ6
16	SA15	DRQ3	SD13	85V
17	SA14	DACK1	SD14	MASTER
18	SA13	DRQ1	SD15	0V
19	SA12	REFRESH	(KEY)	0V
20	SA11	SYSCLK	---	---
21	SA10	IRQ7	---	---
22	SA9	IRQ6	---	---
23	SA8	IRQ5	---	---
24	SA7	IRQ4	---	---
25	SA6	IRQ3	---	---
26	SA5	DACK2	---	---
27	SA4	TC	---	---
28	SA3	BALE	---	---
29	SA2	+5V	---	---
30	SA1	OSC	---	---
31	SA0	0V	---	---
32	0V	0V	---	---

DB15 Connector (CN1,CN3)

Pin Number	Signal	Pin Number	Singal
1	RED	2	N.C.
3	GREEN	4	GND
5	BLUE	6	N.C.
7	N.C.	8	N.C
9	GND	10	VGAHS
11	GND	12	VGAVS
13	GND	14	N.C.
15	GND	16	N.C.

S-Video 4-Pin Header (CN6)

Pin Number	Signal
1	GND
2	GND
3	LUMA
4	CROMA
5	GND

C-Video 3-Pin Header (CN8,CN10)

Pin Number	Signal
1	GND
2	C-Video Signal
3	GND